

The background of the entire page is a photograph of a high-voltage electrical switchgear. A bright blue arc is visible between two terminals on the right side of the image. The text is overlaid on this image.

5K Volts of Blue-Arc Excitement

I thought about that light-blue arc and how close I came to being a conductor for 5,000 volts.

by Lt. Jack Van Natta

Of the five senses—touch, taste, smell, sight, and hearing—which one is most important to a naval aviator? After a recent near-mishap, I'd vote for hearing.

Certain sounds are unmistakable and inspire an immediate physiological response: the sound of a compressor stall, a stuck-flap actuator, or the zap of electrical arcing. On this flight, it was an unmistakable high-voltage “zap” that got my attention.

The flight was going to be my last in support of Operation Southern Watch. We were on station, awaiting the check-in of nearly 40 coalition aircraft, when the mission commander asked me to go into the E-2C's forward equipment compartment (FEC)—the area between the cockpit and the combat information center (CIC)—to reseat a power amplifier on one of our HF radios. I proceeded through the FEC toward the power amplifier, looking for anything out of the ordinary, a good habit to get into in an aircraft jam-packed with miles of electrical wiring.


Everything looked fine, and I started to seat the power amplifier. The HF power amplifier is on the left side of the aircraft, about two and a half feet across from the high-power section of the radar. As I was seating the power amplifier, I heard a loud zap behind me. For a moment, I hoped the noise just inches away from my right leg would disappear, but it didn't.

I turned around to see a four-inch electrical arc on one of the high-power radar boxes.

“This is not good,” I thought. “This is definitely not good.” Although this mission was important, I knew that I had to immediately secure power to the radar, a serious decision that would require handing our mission off to the airborne AWACS, but I saw no alternative. I decided to go back to the CIC and secure the radar from there even though I could have done it from the FEC. I did not want the mission commander to think that the radar had simply shut itself down and reenergize the system without hearing my explanation.

While I secured the radar, I told the mission commander what I had seen. He agreed with my decision and passed the strike off to the AWACS.

After landing, I sat down and seriously thought about my experience. I thought about that light-blue arc and how close I came to being a conductor for 5,000 volts. Postflight inspection revealed that the connector on the line carrying the 5,000 volts to the box in question was shorted about one inch from its connection point. The connector on this same radar box responsible for sending an overcurrent-overload signal to the radar circuit-breaker panel was also broken. The radar was in overload, but did not know to shut itself down. Had we not secured the radar when we did, we could have had a fire.

Although we did not control the strike that day, we were able to remain airborne and on station, assisting the AWACS in many other ways. 

Lt. Van Natta flies with VAW-117.